

## STICKING TEST

### Material and method

Resin E of EXAMPLE was impregnated in a non-woven fabric sheet made of polyester fibers(unit weight  $50\text{g/m}^2$ ). Impregnating amount in said non-woven fabric was  $20\text{g/m}^2$ .

### Sample A

After impregnating Resin E in said non-woven fabric sheet, said non-woven fabric was heated at  $120^\circ\text{C}$  for 10 minutes to put Resin E at B-stage and said non-woven fabric sheet was cut to be a sheet A having a length 250m and a width 1m. Said sheet A was rewinded around a paper tube having a diameter 76mm to be a Roll A.

### Sample B

After impregnated Resin E in said non-woven fabric, said non-woven fabric was heated at  $80^\circ\text{C}$  for 10minutes to put Resin E at A-stage and said non-woven fabric was cut to be a sheet B having a length 250m and a width 1m. Said sheet B was rewinded around a paper tube having a diameter 76mm to be a Roll B.

### Roll sticking test

Roll A and Roll B were respectively stored at a temperature between  $20^\circ\text{C}$  to  $30^\circ\text{C}$  for 10 days, 30 days, 60 days and 180 days. After storage, the sheet A and the sheet B were respectively pulled out from Roll A and Roll B. The appearances of the sheet A at the sheet B pulled out from Roll A and Roll B were respectively observed.

### Laminating test

Roll A and Roll B were respectively stored at a temperature between  $20^\circ\text{C}$  to  $30^\circ\text{C}$  for 10 days, 30 days, 60 days and 180 days. After storage, the sheet A and the sheet B were respectively pulled out from Roll A and Roll B and cut to prepare sheet samples A and B, each sheet sample having a length 1m.

Glass wool sheet (thickness about 30mm) on whose surface a phenolic resin coated was put on each sheet sample and the resulting laminate sheet samples were respectively pressed at  $200^\circ\text{C}$  for 60 sec. to prepare molded sheet samples A and B.

Appearance of each molded sheet sample was observed and the delaminating test was carried out about each molded sheet sample. In the delaminating test, test pieces having the width 25 mm were used and the stretching angle was settled to be  $180^\circ\text{C}$  and the stretching speed was settled to be 200 mm/min.

## Results

Results are shown in Table 1 and Table 2.

**Table 1 Roll sticking test**

storage time(days)	Appearance	
	Sheet A	Sheet B
10	easily pulled out without resistance	pulled out with a slight resistance
30	easily pulled out without resistance	In the center part of Roll B, difficult to be pulled out.
60	easily pulled out without resistance	Difficult to be pulled out and sheet was damaged.
180	easily pulled out without resistance	Can not be pulled out by strong sticking.

**Table 2 Lamination test**

Storage time(days)	Sheet sample A		Sheet sample B	
	Appearance	Interlaminar strength(N cm/25mm)	Appearance	Interlaminar strength(N cm/25mm)
10	no damage	0.32	damage*	0.33
30	no damage	0.30	damage*	0.30
60	no damage	0.31	damage*	0.29
180	no damage	0.32	—	—

\* The damage of the surface of the sheet B contacting with the mold face.

## Discussion

### Roll sticking test

The sheet A in which Resin E is put at B stage has no stickiness so that the sheet A is easily and smoothly pulled out from Roll A without resistance even after long time storage while the sheet B in which Resin E is put at A stage has stickiness so that the sheet B is difficult to be pulled out from Roll B and the surface of the sheet B pulled out from Roll B has damage and resin blur since the sheet B sticks each other in Roll B. After long time storage, the sheet B can not be pulled out from Roll B since the sheet B firmly sticks each other in Roll B.

**Laminating test**

When the laminate sheet sample of the sheet B is pressed, the surface of the sheet B sticks remarkably with the mold face resulting the damage of the surface of the sheet B of the molded sheet sample B.